Miscellanea.

Improvements in Sleepers, Rails, and Machinery.—Mr. James Samuel, C.E., has patented some improvements in the construction of railways and steam-engines, and in steam machinery. He claims the construction of longitudinal trough sleepers. Also the construction of metallic bearing plates or chair sleepers described. 2. The construction of fish-chairs described. 3. The modes of securing and construction of the ends of rails by scarf-points. 4. The corrugation of rail-bearing plates, either transverse or longitudinal. 5. The construction of hollow slide valves, with metal packings and springs, in the manner specified, in order to admit of the waste steam passing through the back of the valve. 6. The mode or modes of constructing such steam-engines as have two or more cylinders, working with their cranks at right angles to each other, or at about such angles, so that steam used for giving motion to the piston of one cylinder may be transferred to another, and used in giving motion to its piston, whereby a great degree of expansion is obtained. 7. The construction of small steam-engines or "donkey," used for pumping water into the boilers of large engines, such engines having pump barrels, pistons, and plungers, such as described.

Statistics of Steam Power in France.—There are 5,607 manufactories in which steam machinery is employed. Of boilers, the number is 9,284, of which 6,776 were made in French establishments. These boilers represent a force of 65,120 horses' power, calculating the horse-power as 75 kilogrammes (180 lb.) raised one metre (1 yard) per second. They represent the available force of 195,361 draught horses and 1,367,530 labourers. The number of boilers employed in the preceding year was only 8,023, and only 4,033 establishments existed in which steam-power was used. The length of railway now open for traffic is 2,171 kilometres (1,300 miles), on which are employed 725 locomotives. The number of steam trading vessels is 279.—tonnage, 40,098 tons. They are propelled by 502 engines, constituting a total power of 22,893 horses. The merchandise transported by these vessels amounted to 760,948 tons. The progress of steam navigation in France is thus indicated: In 1835 there were 75 steamers, by which 1,038,916 passengers were carried, and 68,140 tons of merchandise; last year there were 279 steamers, 2,806,886 passengers, and 730,948 tons.—*Journal des Débats.*

Opening of a New Bridge at St. Petersburg.—The following is an extract from a letter dated "St. Petersburg, Nov. 22 (O.S.).—The new iron bridge over the Neva was opened yesterday by his Majesty in very simple guise. He met the merchants on the English quay, who approached him to return thanks for the construction of such a beautiful bridge. His Imperial Majesty turned, and pointed to the engineers (English and American), and said, 'These are the gentlemen you must thank. Now, gentlemen,' said he, 'let us walk over.' They were hanging back, not understanding they were to accompany him: perceiving which, he said, 'Come along, gentlemen.' And seeing that the crowd of workmen (thousands in number) were kept back, he waved his hand for them to come over also, when they rushed on *en masse*, like a drove of cattle, following and almost driving his good-natured Majesty, with his two sons, the few officers who accompanied him, and the merchants, before them. There was no music, no soldiers, *tout simple*. And the splendid bridge is now open to the public. It is brilliantly lighted with gas, and forms quite a beautiful promenade. Another superb bridge is to be immediately erected from the Litany to the Wiburg side of the Neva. Next November the Moscow railway will be finished."

The American Metal Trade.—Accounts from the metal markets of the United States continue to represent holders as steadily exacting former rates, from which no decline could be obtained at New York. Rather large arrivals of Chilian copper had taken place, amounting to about 100,000 lbs. pig, and 400,000 lbs. in ingots, partially refined, but sold for consumption previous to arrival. The market for Scotch pig iron, though quiet, was firm at 19 dols. 75c. cash, and 29 dols. 75c. six months. English bars were steady at 36 dols. six months, without transactions of importance. The sales also included 609 packs Russia sheet, and 250 tons Swedes, at 82 dols. 50c., though this price has since been refused. The imports into New York from 1st January to 1st December, were, in all, 52,778 tons bar, 41,458 tons pig, and 488,062 bundles; of which 51,532 tons bar, 38,022 tons pig, and 480,070 bundles, were from foreign ports. In the same period of 1849, the total imports were 47,372 tons pig, 63,664 tons bar, and 368,588 bundles. For American lead there was more inquiry.—*Daily News.*——It is generally believed that Congress will increase the duty on iron, and that some fluctuations in that article will consequently take place during the next two or three months. In America, in 1840, there were 115 works, and in 1850, 208, showing an increase of 93.

Electro-telegraphic Progress.—Parliament is to be shortly applied to by various companies for the promotion of electro-telegraphic communication. The company for establishing the submarine telegraph between England and France propose to incorporate themselves by Act of Parliament. Capital to consist of 200,000 shares, of 1*l.* each, with power to borrow to the extent of one-third of the capital. Powers are proposed to be conferred to exercise exclusive right to lay down and use a system of electric printing and other telegraphs from the coast of England to France. In ten years Government to revise the regulations for protection and convenience of the public. The measure proposing to establish a submarine telegraph between Great Britain and Ireland contemplates the same amount of capital, and contains almost similar provisions. The European and American Electric Printing Telegraph Company is for the incorporating a company for the working of certain letters-patent granted to J. Brett, for exclusive use in Great Britain and its colonies for fourteen years,—capital to consist of shares of 5*l.* each, in 40,000 shares, with power to borrow one-third of the capital. The Magneto-Electric Telegraph Company seeks to be incorporated to work certain letters-patent granted in 1848 to W. T. Henley and D. G. Foster,—capital to consist of shares of 20*l.* each, in 25,000 shares, with power to borrow to the extent of one-third of the capital. The existing Electric Telegraph Company apply for a monetary amendment of their Act of 1846. The bill alleges that 600,000*l.* has been subscribed for, and a sum of 300,000*l.* paid on, the 6,000 shares.——Some successful experiments, it is said, have been made with the electric printing telegraph (the invention of Messrs. Brett, of Hanover-square) on the Admiralty line between London and Portsmouth. Messages were printed in a clear Roman type, requiring no transcribing, and being free from the possibility of mistake.——A correspondent of the *Times* complains, that last August, his child being dangerously ill in London, he made a telegraphic message from the station at Gosport to London of nine words: an answer was returned, consisting of twelve words. On these messages 1*l.* 4*s.* was charged and paid at Gosport, and 7*s.* 6*d.* of porterage in London, making a total of 1*l.* 11*s.* 6*d.* Not finding it convenient within a month to apply for a reduction of such charges (quadruple those in America, as he remarks), the secretary intimated to him, when he did apply, that no redress could be had.

Trade.—The hardware trade at Birmingham remains tolerably steady. In some few branches there is a trifling fall off in the orders, at the close of the year. All the great manufactories have orders enough to carry them on, and the men are working full time.——The *Globe* gives a selection of the items in the Russian tariff which came into effect on the 1st of January. With one or two trifling exceptions, every change is a reduction or abolition of duty; and some of these changes are of considerable importance to English producers. Besides the cotton and woollen manufactures, with which we have here less to do, we may specify machines, rough ironwork, tin-ware, earthenware, and glass. Upon these (all holding a prominent rank in our export trade to the Baltic) very important concessions have been made.——The Germans appear to be opening their eyes to the disadvantages of the continental policy adopted to exclude English iron from their markets. A book on this subject, titled "The Iron Lever," is spoken of by a contemporary as recently translated from the German, and interesting, independently of the local interest of the subject treated, as showing the prevalence of Free Trade principles in the very nursery of manufacturing monopoly.——Apropos of the iron trade, we understand that the large works of Messrs. Stephenson are now fully occupied, and that they have extensive orders for locomotive, marine, and stationary engines, so as to require them to take on new hands.——Mr. H. Ferguson, of Glasgow, in his annual circular, recently sent us, says that, "notwithstanding the increased stock of pig-iron, the withdrawal from circulation of a large quantity of scrip has already very much reduced the available iron in the market: and, should the scrip system be permanently discontinued, there seems no reason to doubt that, when speculators have satisfied themselves with their dealings in pig-iron, the practice which obtained previous to storing and scrip having been adopted, will again be resumed. By latest advices from America (he adds), no measures had been taken to alter her tariff, and should no change take place in this respect, a good demand may be expected from that quarter; but the contrary should her legislature impose a high specific duty on imported foreign iron.

The Peel Monument at Liverpool.—The original scheme of a monument of marble or bronze will shortly be carried out. Designs are being obtained. Great disappointment, however, has been felt by many who looked to Liverpool for something worthy of it in the shape of funds for a monument. If we mistake not, some 700*l.*, made up in a few days at the outset, constitute the main amount of the subscriptions. It was afterwards thought that a proposal for the establishment of scholarships might meet with a more cordial support; but 5,000*l.* to 6,000*l.* would be required for these, and the result is a return to the original intention. It is yet hoped, however, that the rich and liberal merchants of Liverpool will not allow the design to be carried out at all, without rendering it worthy of the "princely liberality" for which they are renowned.

Restoration of Heathfield Church.—A few months since a notice appeared in your paper respecting the state of Heathfield Church, in this neighbourhood, which was then in a most deplorable state. It will, I am sure, be gratifying to you to know that your notice was copied by the local journals, and produced a stir in the parish: the result has been that the church is now nearly restored, the north aisle has been rebuilt, the pews lowered and made new, the whitewash scraped from the internal columns and arches, the roof thoroughly repaired, new stone coping, and a new north porch, &c. The tower and spire are not yet done, but I believe it is the intention of the parish to rebuild the spire in the spring. This shows the value of a few words in The Builder.—Clio, Uckfield.

The Canals and Water-supply.—Is it not worth while calling the attention of some of your numerous engineering, building, or other enterprising readers, to the now almost useless canals? Surely they may make some fortunes yet. I am a proprietor of the Basingstoke canal shares. There is about thirty-miles of water-way, with a considerable fall *towards* London, and it is in the vicinity of the spot chosen by certain authorities as the best locality for supplying London with water. At present, as a canal, it is almost useless, and affords a fair chance for any project to convert it to other purposes.—David Singlehart.

Patent White Lead.—On New Year's-day, Mr. H. L. Pattinson, and his partners of the Washington Chemical Company, commenced the manufacture of white lead by his patent process. A numerous party witnessed the grinding of lead ore, and its subsequent transmutation (*without being smelted*) into a colourless liquid. On the mixture of this liquid with another, equally colourless, white lead of brilliant purity was produced. The manufactory is entirely free from noisome smell, although a gas is generated in the process, which, if liberated, would prove highly deleterious, but which is imprisoned and converted into a valuable article of commerce.—*Correspondent of Gateshead Observer.*

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